



Caltrans Division of Research,
Innovation and System Information

Research Results

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Bay Area Airport Disaster Recovery Plan

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Incorporating Bay Area Airports in Disaster Recovery Plans

Airports can aid response and recovery, such as after an earthquake

WHAT WAS THE NEED?

Transportation is essential for quick and effective response and recovery during and after a catastrophic event. After a large earthquake, the San Francisco Bay Area's roadways could experience major damage. Therefore, the transportation system must have enough redundancy and interoperability between modes to not hinder recovery efforts. The region's aviation facilities could play a critical role during a disrupting event, yet the Bay Area does not have a comprehensive, coordinated airport emergency response plan. To better utilize airports, it is important to identify their strengths and vulnerabilities and how the various lifeline systems, such as ground transportation, fuel, and electricity, interact and impact each other.

WHAT WAS OUR GOAL?

The goal was to review the resiliency of the nine-county Bay Area's airports and determine how to integrate them into existing disaster recovery plans and activities.



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WHAT DID WE DO?

Caltrans worked with the Association of Bay Area Governments to analyze the interdependency of the region's major lifeline systems and their strengths and vulnerabilities. The researchers surveyed the commercial and general aviation airports to understand their place in the community and explore how they could support recovery activities. The project collected information from the region's commercial fuel provider about fuel supply chains and interviewed pilots regarding how their volunteer services could be used to support relief efforts. The researchers also evaluated how susceptible the three commercial airports, Oakland, San Francisco, and San Jose, are to liquefaction.

WHAT WAS THE OUTCOME?

Incorporating airports more fully in recovery plans strengthens community resiliency and can speed disaster recovery efforts. Of the 24 airports that completed the emergency plan survey, 21 have some sort of plan, and 16 of them address earthquake events. Although general aviation airports are not required to have airport emergency plans, it would be beneficial to develop a plan scaled to the airport's ability to aid in disaster response and recovery.

The three commercial airports could develop more collaborative working relationships with the regional and local emergency departments and adjacent transit districts. Airports might have to house and feed thousands of travelers as they wait for flights out or even serve as shelter for displaced residents. The liquefaction analysis identified areas at each commercial airport that are especially vulnerable to damage.

This study provided insights to the relationship between lifelines and the cascading and unpredictable nature of failures that can ripple through multiple systems in a disaster. The greatest threat to an airport's ability to function might come from other than the airport. The region's two greatest concerns post disaster are fuel delivery, which depends on functioning surface transportation, and lack of power. These vulnerabilities affect the airports' ability, as well as other essential services, to respond rapidly.

WHAT IS THE BENEFIT?

Airports are part of the mix of interconnected lifeline systems. Having airports remain in operation provides valuable functions during disaster response, including temporary shelter, moving medical supplies and personnel, and airborne search and rescue. The study produced recommendations of actions that airports could take to ensure that they can more quickly recover from an incident,

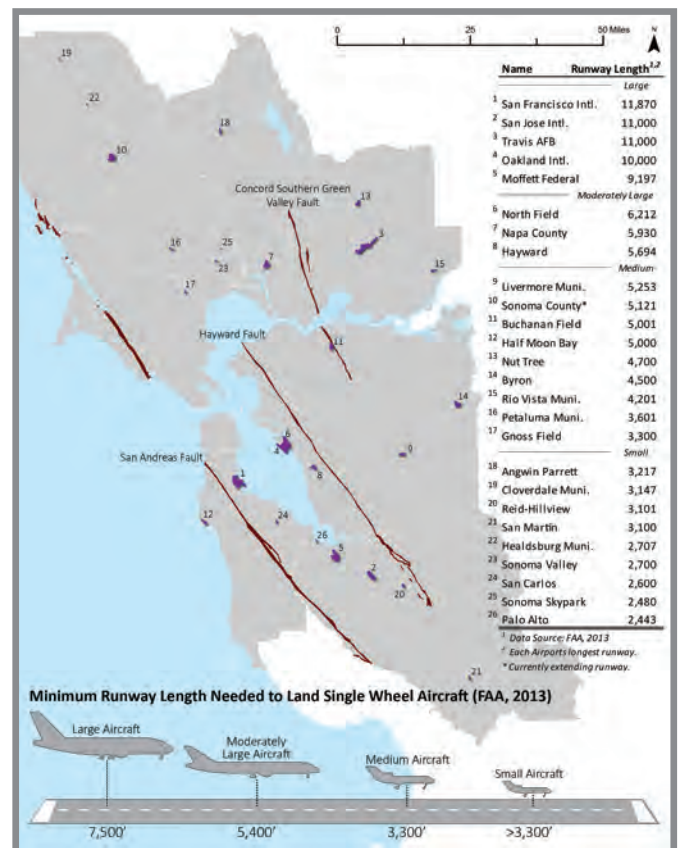
increase their value to regional response actions during a disaster, add mechanisms to speed repair of damaged airport facilities or the infrastructure serving those facilities, and opportunities for improved coordination with and within the regional airport system.

LEARN MORE

For more information, visit:

http://resilience.abag.ca.gov/wp-content/documents/Cascading_Failures/Role-of-Airports-in-Disasters_2015.pdf

http://resilience.abag.ca.gov/wp-content/documents/Cascading_Failures/InfrastructureReport_2014.pdf



Location of Bay Area airports in relation to the three major faults